

XII. Physical Examination Design

A. General Instructions

This phase of Project RANCH HAND II is a cross sectional study of the subject's health at the time of examination. The physical examination and all required laboratory procedures will be performed by physicians and technicians at a major civilian medical center under contract to the Air Force. It is important that examiners remain unaware of the subject's status as a RANCH HAND participant or as a control subject. The physician examiner is tasked to examine and objectively record his findings. The examining physician is not, and cannot be expected to arrive at any definitive diagnosis, as the full history and laboratory results will not be available to him. Medical history, laboratory results, and physical examination findings will be evaluated by an independent diagnostician employed by the contractor. This diagnostician will formulate diagnoses and differential diagnoses, if appropriate. In addition, he will present a detailed analysis and debriefing to the study subject, and provide a copy of the analysis to the subject's personal physician, if so requested.

If, during the examination, the physician discovers evidence of serious illness requiring immediate treatment, the normal emergency or urgent care procedures of the medical facility would apply. Such care will be arranged by the diagnostician and will be supplied by the contractor at Air Force expense. If during the examination, evidence of illness requiring non-emergency medical attention is found, the diagnostician should inform the subject and offer to have forwarded pertinent information to the subject's physician. A clear record of any such advice and treatment should be recorded. The ultimate value of the RANCH HAND II Study will lie in the collection of complete, accurate and, whenever possible, quantitative data permitting the most stringent and powerful statistical analysis. For that reason, the physical examination protocol requires exact measurements in many instances, and the use of defined meanings of semiquantitative indicators in other places.

These examinations will define the health status of the subjects at a point in time, and will establish the presence or absence of abnormal physical findings. After statistical review of the study groups, these findings may permit definition of a chronic effect due to exposure. An inaccurate examination may lead to fallacious study results in two ways: a presumed syndrome may be defined which does not in fact exist, or a syndrome which in fact exists may not be defined with enough validity to warrant further actions.

B. Conduct of the Examination

SECTION	PHYSICAL EXAMINATION	SUBJECT NUMBER
1. GENERAL APPEARANCE a. Appearance/Stated Age <input type="checkbox"/> Younger Than <input type="checkbox"/> Older Than <input type="checkbox"/> Same As b. <input type="checkbox"/> Well-nourished <input type="checkbox"/> Obese <input type="checkbox"/> Under-nourished <input type="checkbox"/> Older Than c. Appearance of illness or distress <input type="checkbox"/> Yes <input type="checkbox"/> No d. Hair Distribution <input type="checkbox"/> Normal <input type="checkbox"/> Abnormal <div style="text-align: right;">SPECIFY:</div>		
2. HEIGHT <small>cm</small>	WEIGHT (Undressed) <small>kg</small>	SITTING BLOOD PRESSURE RIGHT ARM AT HEART LEVEL SYSTOLIC _____ DIASTOLIC _____
3. PULSE RATE _____ REGULAR: <input type="checkbox"/> YES <input type="checkbox"/> NO Describe any irregularities. a. Irregular <input type="checkbox"/> b. Irregularly irregular <input type="checkbox"/> c. VFBs per minute _____		
4. EYE GROUND <input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL Describe any vascular lesions, hemorrhages, exudates, Hemorrhages, papilledema. <input type="checkbox"/> A-V nicking <input type="checkbox"/> Exudates <input type="checkbox"/> Papilledema <input type="checkbox"/> ↑ light reflex <input type="checkbox"/> Disk Pallor <input type="checkbox"/> ↑ Cupping <input type="checkbox"/> Arteriolar spasm		
5. ARCUS SENILIS <input type="checkbox"/> PRESENT <input type="checkbox"/> ABSENT 5a. Abnormal Ocular Pigmentation <input type="checkbox"/> Yes <input type="checkbox"/> No		
6. ENT <input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL Describe any abnormality. Tympanic membranes intact <input type="checkbox"/> Yes <input type="checkbox"/> No R <input type="checkbox"/> L <input type="checkbox"/> Nasal ulcerations <input type="checkbox"/> No <input type="checkbox"/> Yes		
7. NECK (Especially thyroid gland) <input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL Describe any abnormality. Thyroid gland palpable <input type="checkbox"/> Enlarged <input type="checkbox"/> Parotid gland enlargement <input type="checkbox"/> Nodules <input type="checkbox"/> R <input type="checkbox"/> L <input type="checkbox"/> Tenderness		
8. THORAX AND LUNGS <input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL Describe any abnormality, especially basilar rales. <input type="checkbox"/> Asymmetrical expansion <input type="checkbox"/> Wheezes Circumference at nipple level <input type="checkbox"/> Hyperresonance <input type="checkbox"/> Rales Expiration _____ cm <input type="checkbox"/> Dullness Inspiration _____ cm		
9. HEART <input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL Describe any enlargement, irregularity of rate, murmurs, or thrills. Displacement of apical impulse <input type="checkbox"/> No <input type="checkbox"/> Yes Precordial thrust <input type="checkbox"/> No <input type="checkbox"/> Yes Heart sounds normal <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> S1 <input type="checkbox"/> S2 <input type="checkbox"/> S3 <input type="checkbox"/> S4		
(Continued in Item 18 on Reverse)		
10. ABDOMEN <input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL Describe any abnormality with special attention to the spleen and liver. Record waist measurement on attached form. <input type="checkbox"/> Hepatomegaly <input type="checkbox"/> Other mass - Specify: cm Liver Span <input type="checkbox"/> Splenomegaly <input type="checkbox"/> Tenderness <input type="checkbox"/> Liver <input type="checkbox"/> Spleen <input type="checkbox"/> Other, specify:		
11. EXTREMITIES <input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL Describe any edema or signs of vascular insufficiency. <input type="checkbox"/> Absence, specify: <input type="checkbox"/> Edema <input type="checkbox"/> Clubbing of nails <input type="checkbox"/> Pitting <input type="checkbox"/> Non-pitting <input type="checkbox"/> Varicosities <input type="checkbox"/> Loss of hair on toes <input type="checkbox"/> R <input type="checkbox"/> L		

SECTION		PHYSICAL EXAMINATION (Continued)			
12. PERIPHERAL PULSES		NORMAL	DEMIN.	ABSENT	COMMENTS
RADIAL					
FEMORAL					
POPLITEAL					
DORSALIS PEDIS					
POSTERIOR TIBIAL					
13. SKIN <input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL Indicate type and location of lesions on the attached anatomical figure					
<input type="checkbox"/> Dermatographia <input type="checkbox"/> Comedones <input type="checkbox"/> Acneiform lesions <input type="checkbox"/> Acneiform scars <input type="checkbox"/> Depigmentation <input type="checkbox"/> Inclusion cysts <input type="checkbox"/> Cutis Rhomboidalis		<input type="checkbox"/> Hyperpigmentation <input type="checkbox"/> Jaundice <input type="checkbox"/> Spider angiomas <input type="checkbox"/> Palmar erythema <input type="checkbox"/> Full-Face and Bilateral profile photos taken		<input type="checkbox"/> Palmar Keratosis <input type="checkbox"/> Petechiae <input type="checkbox"/> Ecchymoses <input type="checkbox"/> Soles of feet <input type="checkbox"/> Nails <input type="checkbox"/> Biopsy Taken	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No					
14. MUSCULOSKELETAL <input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL					
<input type="checkbox"/> Muscle - Specify: <input type="checkbox"/> Weakness <input type="checkbox"/> Tenderness <input type="checkbox"/> Abnormal Consistency <input type="checkbox"/> Atrophy		<input type="checkbox"/> Spine <input type="checkbox"/> Scoliosis <input type="checkbox"/> Kyphosis <input type="checkbox"/> Tenderness, Level _____ <input type="checkbox"/> Decreased range of motion <input type="checkbox"/> Pelvic tilt <input type="checkbox"/> Straight Leg Raising: Right/Left			
15. GENITOURINARY - RECTAL - HERNIA <input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL					
<input type="checkbox"/> Inguinal hernia <input type="checkbox"/> R <input type="checkbox"/> L <input type="checkbox"/> Testes		<input type="checkbox"/> Varicocele <input type="checkbox"/> Epididymis <input type="checkbox"/> Scrotal Mass _____ cm dia <input type="checkbox"/> Hemorrhoids <input type="checkbox"/> Prostatic Enlargement <input type="checkbox"/> Rectal mass			
<input type="checkbox"/> Absent <input type="checkbox"/> Enlarged <input type="checkbox"/> Atrophic					
16. LYMPH NODES - CHECK ALL AREAS. <input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL - SPECIFY CERVICAL, OCCIPITAL, SUPRACLAVICULAR, AXILLARY, EPITRACHEAL, INGUINAL, FEMORAL					
<input type="checkbox"/> Enlarged <input type="checkbox"/> Tender <input type="checkbox"/> Hard <input type="checkbox"/> Fixed <input type="checkbox"/> Confluent					
17. NERVOUS SYSTEM - SEE ATTACHED FORMS					
18. HEART AND OTHER OBSERVATIONS					
(Continued from Item 9)					
Murmur <input type="checkbox"/> No <input type="checkbox"/> Yes Area <input type="checkbox"/> Ao <input type="checkbox"/> Pu <input type="checkbox"/> Apex					
Sys <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>					
Dia <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>					
DATE OF EXAMINATION					
MONTH		DAY		YEAR	
TYPED OR PRINTED NAME OF EXAMINING PHYSICIAN					
SIGNATURE					
EXAMINING FACILITY					

CLINICAL RECORD

NEUROLOGICAL EXAMINATION

HEAD AND NECK - Normal to Palpations/Inspection ☐ Y ☐ N Specify Scar ☐Asymmetry ☐ Depression ☐Carotid Bruit ☐ No ☐ R ☐ LNeck Range of Motion ☐ Normal or Decreased to ☐ Left ☐ Right☐ Forward ☐ Backward

TRUNK

MOTOR SYSTEM - Handedness Right ☐ Left ☐Gait ☐ Normal or ☐ Broad Based ☐ Ataxic ☐ Small Stepped ☐ Other-SpecifyAssociated Movements ☐ Arm Swing ☐ Normal or Abnormal ☐ R ☐ L

Muscle Status (strength, tone, volume, tenderness, fibrillations)

Bulk ☐ Normal ☐ AbnormalTone Upper Extremities ☐ Normal or ☐ Increased ☐ Decreased☐ Right ☐ LeftLower Extremities ☐ Normal or ☐ Increased ☐ Decreased☐ Right ☐ LeftStrength - Distal wrist extensors ☐ Normal ☐ DecreasedAnkle/Toe Dors/Flexors ☐ Normal ☐ Decreased ☐ R ☐ LProximal Deltoids ☐ Normal ☐ Decreased ☐ R ☐ LHip Flexors ☐ Normal ☐ Decreased ☐ R ☐ LAbnormal Movements (tremors, tics, choreas, etc.) Fasciculations ☐ No ☐ Yes (1-4+)Tenderness ☐ No ☐ Yes (1-4+)Tremor ☐ No ☐ Yes - SpecifyUpper Extremity ☐ R ☐ L ☐ Resting ☐ Essential ☐ IntentionLower Extremity ☐ R ☐ L ☐ Other

Coordination (a) Equilibratory - Eyes Open

Eyes Closed - Romberg ☐ Positive (Abnormal) ☐ Negative (Normal)

Right Foot

Left Foot

(b) Nonequilibratory (F to N; F to F; H to K) Finger-to-nose-to-finger

☐ Normal ☐ Abnormal ☐ Right ☐ Left ☐ BothHeel-Knee-Shin ☐ Normal ☐ Abnormal ☐ Right ☐ Left ☐ Both

(c) Succession Movements (including check, rebound, posture-holding)

If indicated, check ☐ Normal ☐ Abnormal ☐ R ☐ LRapidly alternative movements ☐ Normal ☐ Abnormal ☐ R ☐ L ☐ Both

Skilled Acts

() Handwriting. If indicated, ☐ Normal ☐ Abnormal() Speech (articulation, aphasia, agnosia) Grossly ☐ Normal☐ Abnormal - Specify Dysarthria ☐Aphasia ☐

Reflexes (0-absent; 1-sluggish; 2-active; 3-very active; 4-transient clonus; 5-sustained clonus)

Deep	R	L	Deep	R	L	Other	R	L	Abnormal	R	L
									Babinski		
Biceps			Patellar								
Triceps			Achilles								
Remarks											

MENINGEAL IRRITATION

Straight Leg Raising ☐ Normal ☐ Abnormal ☐ R ☐ L ☐ Both

NERVE STATUS (tenderness, tumors, etc.)

SENSORY SYSTEM (tactile, pain, vibration, position. If positive sensory signs are present, summarize below and indicate details on Anatomical Figure, Std. Form 531)

Light Touch ☐ Normal ☐ Abnormal

Pin Prick ☐ Normal ☐ Abnormal (Map on Anatomical Figure)

Vibration (at ankle, 128 hz tuning fork): ☐ Normal ☐ Abnormal ☐ R ☐ L ☐ Both

Position (Great toe): ☐ Normal ☐ Abnormal ☐ R ☐ L ☐ Both

CRANIAL NERVES

I R Smell ☐ Present ☐ Absent

L Smell ☐ Present ☐ Absent

II Fundus R Normal ☐ Abnormal ☐ Disk Pallor/atrophy
☐ Exudate ☐ Papilledema ☐ Hemorrhage

Fundus L Normal ☐ Abnormal ☐ Disk pallor/atrophy
☐ Exudate ☐ Papilledema ☐ Hemorrhage

Fields (to confrontation)

Right ☐ Normal ☐ Abnormal Left ☐ Normal ☐ Abnormal

III Normal ☐ Abnormal - Specify

IV Pupils-Size (mm) Equal ☐ Unequal ☐ Difference mm _____

VI Shape, position Round ☐ Other ☐ R ☐ L

Light, Reaction Normal ☐ Abnormal ☐ R ☐ L

Position of Eyeballs

Movements R

L

Nystagmus Rotary ☐ Horizontal ☐ Vertical ☐
 (Draw position)

XI

Ptosis R ☐ L ☐

V Motor R Clench Jaw - Symmetric ☐ Deviated ☐ R ☐ L ☐

L

Sensory R Normal ☐ Abnormal ☐ V₁ ☐ V₂ ☐ V₃ ☐

L Normal ☐ Abnormal ☐ V₁ ☐ V₂ ☐ V₃ ☐

Corneal Reflex R ☐ L ☐

VII Motor R Normal smile ☐ Yes ☐ No Palpebral Fissure ☐ Yes ☐ No

L Normal smile ☐ Yes ☐ No Palpebral Fissure ☐ Yes ☐ No

IX Palate and Uvula

X Movement Normal ☐ Deviation to ☐ R ☐ L

Palatal Reflex R ☐ Normal ☐ Abnormal

L ☐ Normal ☐ Abnormal

XII Tongue-Protruded-Central ☐ R ☐ L ☐

Atrophy ☐ No ☐ Yes

MENTAL STATUS (alert, clear, cooperative, etc.) Gross abnormalities: ☐ No

☐ Yes - Specify

DIAGNOSTIC SUMMARY
SYNOPSIS OF POSITIVE FINDINGS

Medical History:

Physical Examination:

General

Dermatologic

Neurological

Psychological

Laboratory Results:

Diagnosis:

Differential Diagnosis, if applicable:

Date

Signature
of Diagnostician

C. Special Procedures

(1) Nerve Conduction Velocities (NCV)

These studies have been determined to be an important parameter in long-term follow-up studies of persons thought to have been exposed to Herbicide Orange components. The Nerve Conduction Velocities should be performed by a physician or by a specialty qualified technician under the supervision of a physician trained in neurophysiological methods.

(a) Specific NCVs

(1) Ulnar Nerve (one side only)

(a) motor (above elbow, below elbow)

(b) values recorded

(i) distal latency

(ii) NCV

(2) Peroneal Nerve (one side only)

(a) motor

(b) values recorded

(i) distal latency

(ii) NCV

(3) Sural Nerve (one side only)

(a) sensory: orthodromic

(b) values recorded: NCV

(b) Methods

Standardized, published methods will be used (e.g., Smorto, Marcio P., and John V. Basmajian; Electrodiagnosis; Harper and Row; NY, 1977).

(2) Psychological Test Battery

(a) General

This battery yields objective numerical data, and is well-standardized and clinically validated. The individual tests were chosen to insure an adequate analysis of one of the major alleged manifestations of

Herbicide Orange toxicity. Each test either validates the other tests or is considered to be a "definitive" test for analysis of a suspected psycho-neuro-pathic effect under study. Compared to the general civilian population, characteristic response tendencies are observed on the MMPI and Cornell Index among active duty aircrewmembers being evaluated in an aeromedical setting. It is also important to consider the effect that pending retirement has exerted on the reporting of medical history and symptomatology. This may also alter responses to psychological testing.

(b) Specific Tests

(1) Wechsler Adult Intelligence Scale (WAIS)

Individually-administered collection of verbal and nonverbal intellectual measures; also useful for clinical inferences when combined with the neuropsychological battery below.

(2) Reading subtest of the Wide Range Achievement Test (WRAT)

Individually-administered measure of word recognition ability. Important to rule-out reading inefficiency should the response to the personality instruments below be of questionable validity (e.g., high F scale on MMPI).

(3) Halstead-Reitan Neuropsychological Test Battery

Individually-administered collection of brain behavior relationship measures for establishing the functional integrity of the cerebral hemispheres. The battery must include the following subtests: Category, Tactual performance, Speech-Sounds, Seashore Rhythm, Finger Tapping, Trail Making, and Grip Strengths. The Aphasia Screening and Sensory-Perceptual Exams are considered optional in view of their redundancy with the clinical neurologic exam included in this project. Individualized test debriefing is conducted to clarify test performances in the WAIS and Neuropsychological Battery.

(4) Three subtests of the Wechsler Memory Scale I (WMS I)

Individually-administered measures of immediate and delayed recall of verbal and visual materials. The Logical Memory, Associate Learning and Visual Reproduction subtests are to be administered in the standard, immediate-recall fashion initially. After 30 minutes has elapsed, the examinee is asked, without prior alerting, to recall as much as he can about the Logical Memory and Visual Reproduction subtest stimuli. Standard scoring is used for both test-retest administrations.

(5) Cornell Index (CI)

Self-administered and standardized neuropsychiatric symptom and complaint inventory, including items involving asthenia, depression, anxiety, fatigue, and GI symptoms in lay language. Endorsement of items are to be explored and clarified in test-debriefing.

(6) Minnesota Multiphasic Personality Inventory (MMPI)

60 to 90 minute self administered clinical psychiatric screening instrument; also capable of estimating response biases (e.g., "fake good," or "fake bad"). The shortened version of Form R (i.e., items 1 to 399) may be substituted for the 566-item Long Form. Standard scoring and Minnesota norms are to be used, with the possible exception of active duty examinees where USAFSAM aircrew norms may be applied. Clarification of profiles showing response biases, questionable validity, and/or unusual item endorsements will be conducted in individual test debriefing.

(3) 12-Lead Electrocardiogram

(a) Procedures

A standard 12-lead scalar electrogram is required. If an arrhythmia is observed, a one minute rhythm strip will be obtained. The electrogram will be done following a minimum fast of four hours.

(b) Interpretation

The electrocardiograms will be interpreted by cardiologists at the examining center, and then forwarded to Brooks AFB where physicians in the USAF Central ECG Library will compare the tracing to previous individual ECG records in the case of rated (pilot or navigator) subjects.

(c) Disposition (USAF Central ECG Library)

(1) Pilots and Navigators

The original tracings will be microfished and permanent record established for each individual.

(2) Enlisted Subjects

The original tracings will be microfished and a permanent record established for each individual.

(4) Radiographic Examination

A standard 14x17 in., standing, roentgenogram in the PA position using small nipple markers will be accomplished.

(5) Pulmonary Function Studies

Standard evaluation of vital capacity and forced expiratory volume at 1 second will be performed.

(6) Laboratory Procedures

(a) Specific Tests to be Performed on all Participants

- (1) Hematocrit
- (2) Hemoglobin
- (3) RBC Indices
- (4) White Blood Cell Count and Differential
- (5) Platelet Count
- (6) Erythrocyte Sedimentation Rate
- (7) Urinalysis
- (8) Semen Analysis (Number, % Abnormal, Volume)
- (9) Blood Urea Nitrogen
- (10) Fasting Plasma Glucose
- (11) Creatinine
- (12) 2-hour Post Prandial Plasma Glucose
- (13) Differential Cortisol (0730 and 0930 hours)
- (14) Cholesterol & HDL
- (15) Triglycerides
- (16) SGOT
- (17) SGPT
- (18) GGTP
- (19) Bilirubin, Total and Direct
- (20) Alkaline Phosphatase
- (21) LDH

- (22) Serum Protein Electrophoresis
- (23) CPK
- (24) VDRL
- (25) LH
- (26) FSH
- (27) Testosterone
- (28) Thyroid Profile (RIA) (T₃, T₄, TSH,FTI)
- (29) Delta-aminolevulinic Acid
- (30) Urine Porphyrins
- (31) Hepatitis B antigen/antibodies
- (32) Prothrombin time
- (33) Blood Alcohol

(b) To be performed on selected subjects

- (1) Anti-nuclear Antibody on subjects with indications of autoimmune disorders
- (2) Hepatitis A Antigens/antibodies for those with current or past history of liver disease
- (3) Karyotyping for those fathering children with birth defects
- (4) Skin photography and skin biopsy on subjects with suspected chloracne
- (5) To be performed if medical history indicates a subject has an increase in infectious diseases:
 - (a) Immuno-electrophoresis
 - (b) Quantitative Immunoglobulin Determinations

subjects (6) To be performed on a randomly selected group of

(a) Enumeration of B and T cells

(b) Enumeration of Monocytes

(c) B and T cell function tests

(7) Rationale for laboratory procedures

(a) Studies on the toxicity of TCDD in animals have shown that the following organ systems are damaged:

(1) Liver: Hepatic necrosis, liver enzyme changes, hypoproteinemia, hypercholesterolemia, hypertriglyceridemia.

(2) Reticuloendothelial System: Thymic atrophy, altered cellular immunity, decreased lymphocyte counts.

(3) Hemopoietic System: Anemia, thrombocytopenia, leukopenia, pancytopenia.

(4) Endocrine System: Hemorrhage and atrophy of adrenal cortex, hypothyroidism.

(5) Renal: Increase in blood urea nitrogen.

(6) In addition, statistically significant increases in hepatocellular carcinomas (liver) and squamocellular carcinomas of the lung were found.

(b) Studies on the toxic effects of TCDD in man have shown that the following organ systems are damaged:

(1) Skin: Chloracne, hirsutism.

(2) Liver: Porphyria cutanea tarda. Increased levels of transaminase and of GGTP. Enlarged, tender liver, hyperlipidemia.

(3) Renal: Hemorrhagic cystitis, focal Pyelonephritis.

(4) Neuromuscular System: Asthenia, i.e., headache, apathy, fatigue, anorexia, weight loss, sleep disturbances, decreased learning ability, decreased memory, dyspepsia, sweating, muscle pain, joint pain and sexual dysfunction.

(5) Endocrine System: Hypothyroidism.

(c) Based upon the reports of toxic effects in animal and human exposures, the following organ panels were thus recommended:

- (1) Hemopoietic
- (2) Reticuloendothelial
- (3) Renal
- (4) Endocrine
- (5) Neuromuscular

(d) Hemopoietic screening should include:

- (1) Hematocrit
- (2) Hemoglobin
- (3) RBC indices
- (4) Erythrocyte sedimentation rate
- (5) Platelet count
- (6) Prothrombin time

(e) Reticuloendothelial system:

- (1) White blood cell count
- (2) Differential
- (3) Serum protein electrophoresis
- (4) Selective use of immunoelectrophoresis and quantitative immunoglobulin determination
- (5) B cell and T cell counts and functions

(f) Hepatic screen:

- (1) SGOT
- (2) SGPT
- (3) GGTP

- (4) Bilirubin, Total and Direct
- (5) Alkaline phosphatase
- (6) LDH
- (7) Cholesterol
- (8) HDL
- (9) Triglyceride
- (10) Urine prophyrrins
- (11) Urine porphobilinogen
- (12) Hepatitis B antigens/antibodies
- (g) Renal screen:
 - (1) Urinalysis
 - (2) BUN
 - (3) Creatinine
- (h) Endocrine screen:
 - (1) Differential cortisol (0730 and 0930 hours)
 - (2) Thyroid profile (RIA)
 - (3) Fasting plasma glucose
- (i) Neuromuscular system:
 - (1) CPK
- (j) Elucidation of sympoms of asthenia:
 - (1) Testosterone
 - (2) LH
 - (3) FSH

(k) The following tests should be performed only as follow-up for abnormalities in the history or physical examination findings:

(1) HAVAB (IgG and IgM)

(2) ANA